iCOM

DUAL BAND
FM TRANSCEIVER

IC-3210A
IC-3210E

Icom Inc.

CAUTIONS

Before using the transceiver, read all instructions carefully and completely.

SAVE THESE INSTRUCTIONS — This instruction manual contains important safety and operating instructions for the IC-3210A/E.

NEVER connect the transceiver to an AC outlet. This will ruin the transceiver.

NEVER connect more than 16 V DC power supplies or batteries to the transceiver. Check the source before connecting the power cable.

NEVER allow children to touch the transceiver during operation.

NEVER use or place the transceiver in areas with temperatures below −10°C (+14°F) or over +60°C (+150°F).

NEVER expose the transceiver to rain, snow or any liquids.

DO NOT place the transceiver in excessively humid environments.

AVOID placing the transceiver in direct sunlight, such as on the dashboard.

AVOID using the transceiver in excessively dusty environments.

BE CAREFUL! The heatsink may become hot when operating the transceiver continuously for long periods.

TABLE OF CONTENTS

FOREWORD

Thank you for purchasing the **IC-3210A/E DUAL BAND FM TRANSCEIVER** from Icom.

Please read this instruction manual thoroughly before operating your new **IC-3210A/E.** For further information, please feel free to contact your nearest Icom Dealer or Service Center.

UNPACKING
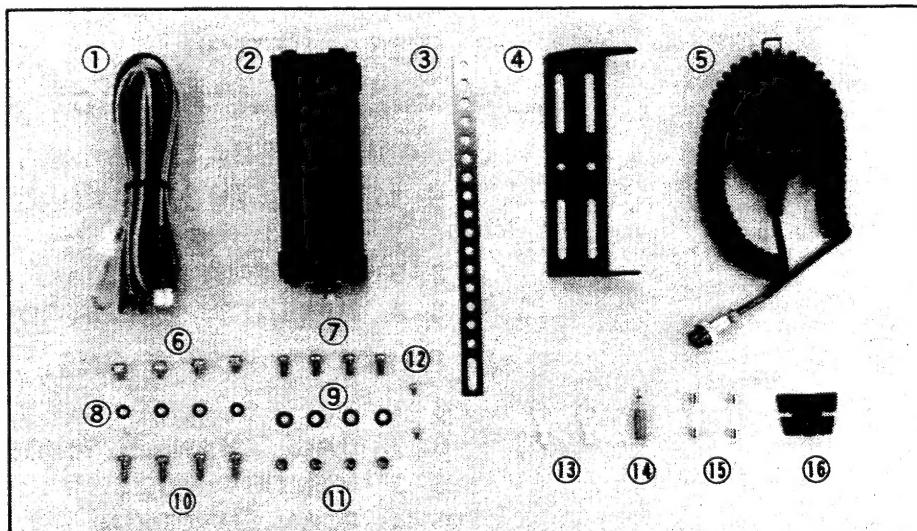
Accessories included	Qty.
① DC power cable	1
② Mobile mounting bracket	1
③ Mounting support bracket	1
④ Angle bracket	1
⑤ Microphone*	1
⑥ Mounting bracket screws	4
⑦ Mounting screws (M5 x 12)	4
⑧ Spring washers (M5)	4
⑨ Flat washers (M5)	4
⑩ Mounting self-tapping screws	4
⑪ Nuts (M5)	4
⑫ Screws (M3 x 6)	2
⑬ Cable lugs	2
⑭ External speaker plug	1
⑮ Fuses (15A)	2
⑯ Microphone hanger	1

* HM-12 (supplied with IC-3210A, Australia version)
HM-14 (supplied with IC-3210A, U.S.A. version)
HM-15 (supplied with IC-3210E)

TWO BANDS IN A COMPACT BODY

The IC-3210A/E gives you 2 m and 70 cm in one compact body. Operate two bands with one transceiver. The built-in duplexer allows one-antenna operation.

FULL DUPLEX CAPABILITY

Transmit on one band and receive on the other and you're operating with full duplex. Working full duplex is as easy as talking on the telephone.

SIMPLE PANEL DESIGN

The front panel is very simple: there are only three controls and eleven switches. The simple design makes operation easy — even when driving.

20 DOUBLE-SPACED MEMORY CHANNELS

The IC-3210A/E has 20 double-spaced memory channels. One space stores an operating frequency as well as all information required to work a repeater. When not working a repeater, the other space stores a frequency to be used for full duplex. Up to 40 channels can be used for simplex.

THREE SCANS

The IC-3210A/E has three scans: programmed scan, memory scan and selected band memory scan. Using the memory channel skip function, any number of memory channels can be skipped during a scan.

PRIORITY WATCH

Every five seconds, priority watch monitors another band VFO, a call channel, a memory channel, or all memory channels in succession while you work on the operating frequency.

POCKET BEEP

When the UT-40 (sold separately) is installed, the transceiver functions as a pager. When a received tone frequency equals the tone you've set, an alarm of 30 seconds is emitted over the speaker. This is especially convenient for busy schedules, etc.

MONITOR FUNCTION

The monitor function opens the squelch (also the tone squelch when the UT-40 is installed) without you rotating the [SQL/MONITOR] control.

2 PANEL DESCRIPTION

2-1 FRONT PANEL

TRANSMIT INDICATOR [TX]
Lighted when transmitting. (p. 13)

RECEIVE INDICATOR [RX]
Lighted when the squelch is open. (p. 12)

TUNING CONTROL
Changes the operating frequency (p. 11), the memory channel (p. 18) and the contents of the SET mode displays (p. 10).

LOCK SWITCH [LOCK]
Deactivates the tuning control and locks some switches. (p. 27)

VFO/MEMORY SWITCH [VFO/M]
Accesses the VFO or the memory mode. (p. 18)

CALL CHANNEL SWITCH [CALL]
Accesses and leaves the call channel. (p. 17)

BAND SELECTOR SWITCH [BAND]
Selects either VHF or UHF. (p. 11)

TUNING STEP SWITCH [TS]
Sets the tuning step at 1 MHz. (p. 11)

PRIORITY WATCH [PRIO]
Turns priority watch ON and OFF. (p. 25)

TRANSMIT POWER SWITCH [HI/LO]
Sets the transmit power to 5 W or 25 W. (p. 13)
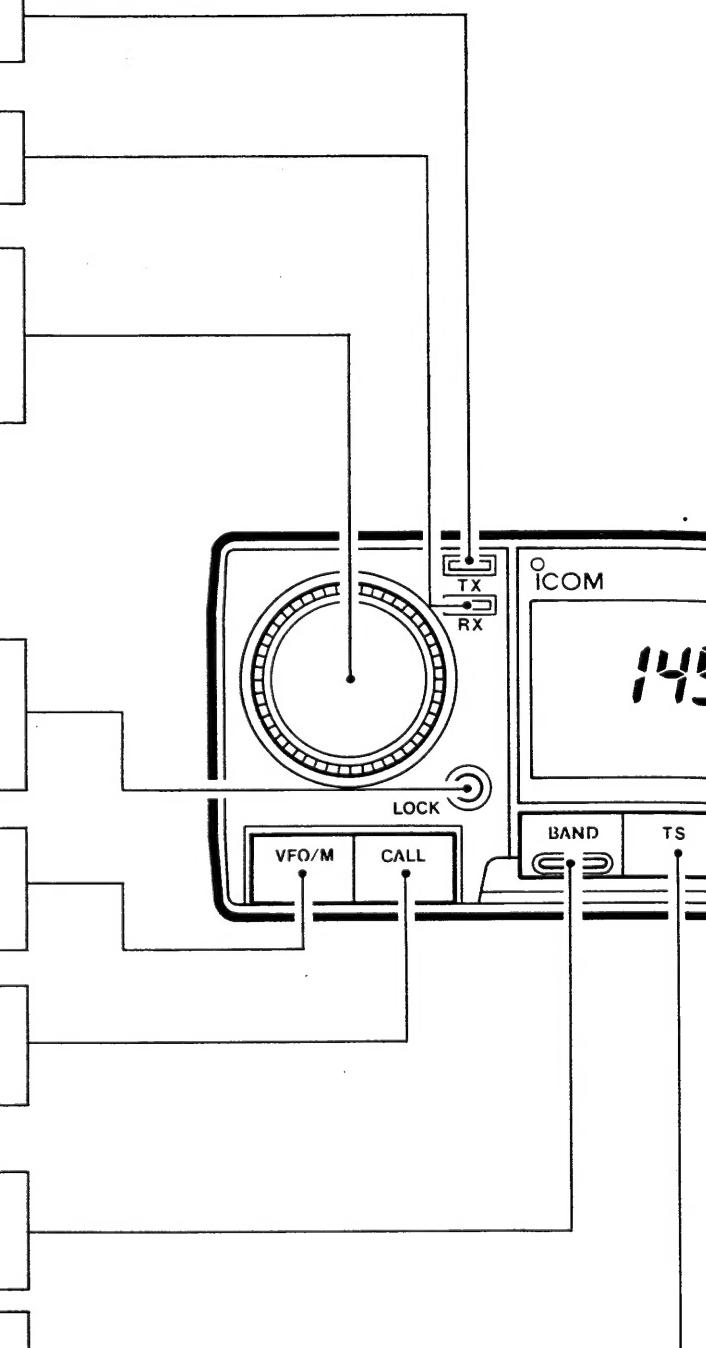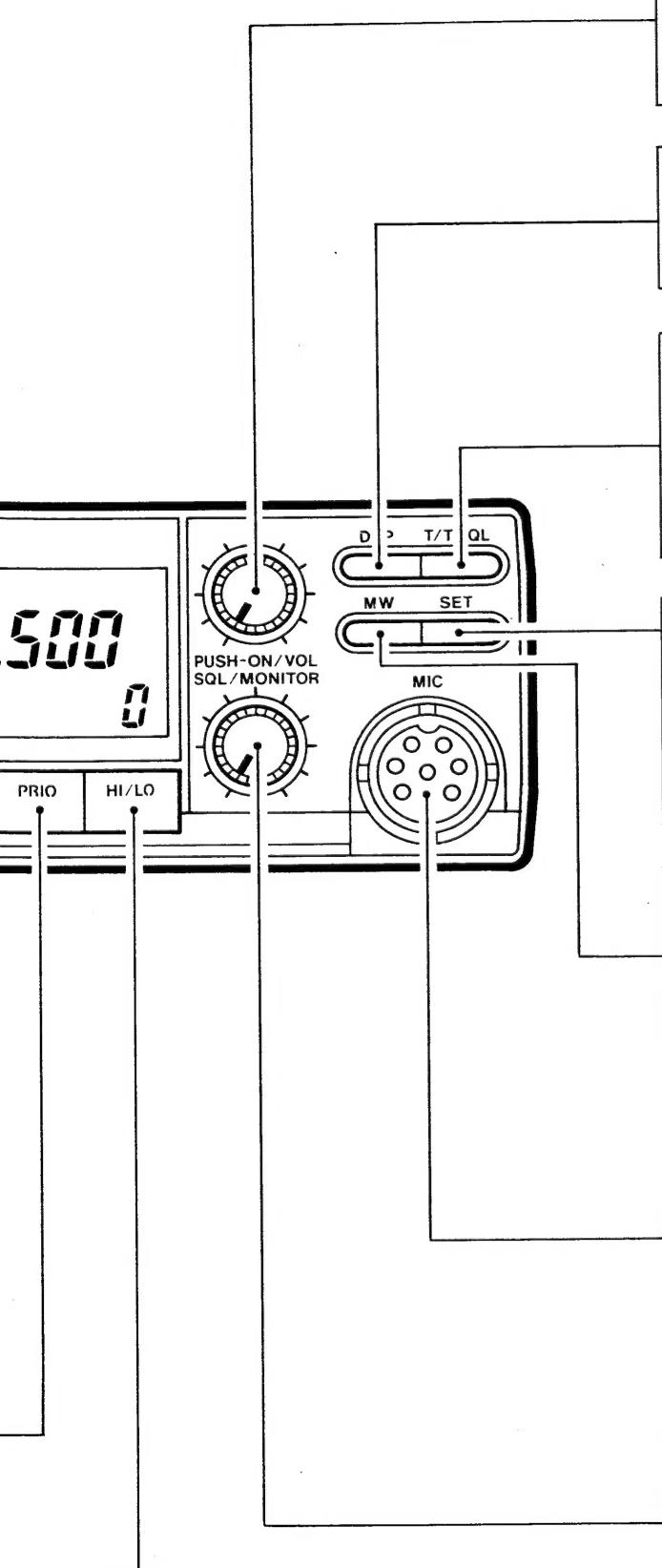
POWER SWITCH/VOLUME CONTROL [ON/VOL]
Turns the power ON and OFF, and adjusts speaker volume (p. 12).

DUPLEX SWITCH [DUP]
Selects simplex, —duplex, +duplex or full duplex. (pgs. 14, 16)

TONE SWITCH [T/T.SQL]
Turns ON the subaudible tone encoder. (p. 14)

Selects UT-40 TONE SQUELCH UNIT functions. (p. 29)

SET MODE SWITCH [SET]
Accesses the SET mode and advances the SET mode displays. (p. 10)

Programs a channel to be skipped during a memory scan. (p. 24)

MEMORY WRITE SWITCH [MW]
Writes a memory channel (p. 18); transfers the contents of a memory channel to the VFO (p. 19); programs a call channel (p. 17).

MICROPHONE CONNECTOR (p. 5)

SQUELCH CONTROL/MONITOR SWITCH [SQL/MONITOR]
Sets the squelch threshold level. (p. 12)

Opens the squelch while pushed. (p. 12)

2 PANEL DESCRIPTION

2-2 FUNCTION DISPLAY

DUPLEX INDICATOR
"DUP—" or "DUP" appears when semi duplex is selected for repeater operation. (p. 14)

SPLIT INDICATOR
"SPT" appears when full duplex is selected. (p. 16)

PRIORITY INDICATOR
Appears during priority watch operation. (p. 25)

TONE INDICATOR
"TONE" appears when the tone encoder is turned ON. (p. 14)

"SQL" appears when the UT-40 (sold separately) "pocket beep" function is activated. (p. 29)

"TONE SQL" appears when the UT-40 (sold separately) tone squelch function is activated. (p. 29)

FREQUENCY READOUT
Displays the operating frequency (except during the SET mode).

SPT DUP— TONE SQL
PRIO
TS
146.000
LOW
1 5 9
M SKIP 18
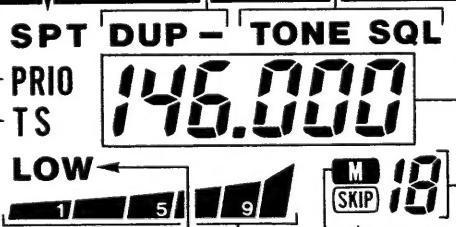
TUNING STEP INDICATOR
Appears when a **1 MHz** tuning step is selected with the [TS] switch. (p. 11)

LOW POWER INDICATOR
Appears when low power is selected with the [HI/LO] switch. (p. 13)

S/RF INDICATOR
Displays the strength of a received signal. (p. 12)

Displays relative output power selection when transmitting. (p. 13)

MEMORY INDICATOR
Appears when the memory mode is selected with the [VFO/M] switch. (p. 18)

MEMORY CHANNEL READOUT
Displays the memory channel number. (p. 18)

Displays "C" when the call channel mode is selected with the [CALL] switch. (p. 17)

Displays "L" when the lock function is activated with the [LOCK] switch. (p. 27)

SKIP CHANNEL INDICATOR
Appears when a memory channel is programmed to be skipped during a memory scan. (p. 24)

2-3 REAR PANEL

POWER RECEPTACLE
Accepts 13.8V DC with the supplied DC cable. (p. 7)

EXTERNAL SPEAKER JACK
4 ~ 8 Ω speaker jack.

ANTENNA CONNECTOR
Connects a 50 Ω dual-band antenna with a PL-259 connector to the transceiver. (p. 8)
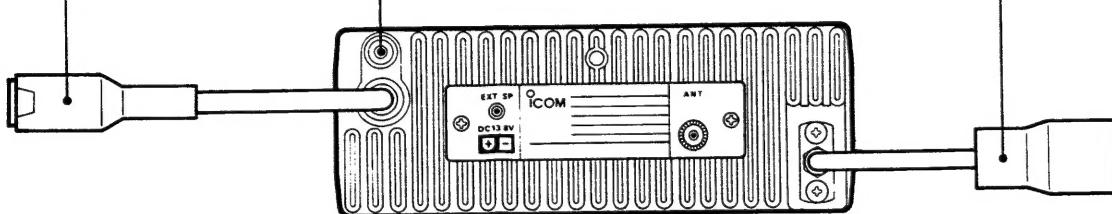
2-4 MICROPHONE
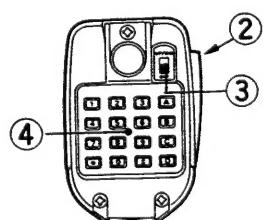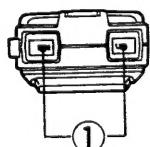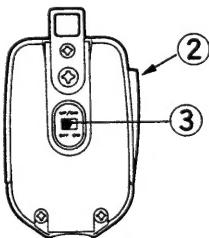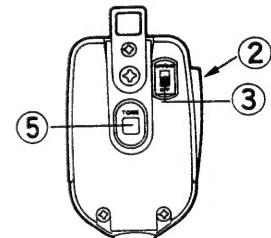
HM-14   HM-12   HM-15

①FREQUENCY UP/DOWN SWITCHES [UP] [DN]
Push either switch to change the operating frequency or a memory channel. (p. 11)

Push and hold either switch to start scanning. (pgs. 20 ~ 23)

②PTT SWITCH
Push and hold to transmit. (p. 13)

③UP/DOWN ON/OFF SWITCH
Deactivates the [UP] [DN] switches.

④DTMF KEYBOARD (HM-14 only)
Produces DTMF signals when the PTT switch is pushed. (p. 14)

⑤TONE CALL SWITCH (HM-15 only)
Push and hold to transmit a 1750 Hz tone signal. (p. 14)

●MIC CONNECTOR (Front panel view)

⑧AF OUTPUT
①MIC INPUT
⑦GND (Microphone ground)
②+8 V DC OUTPUT
⑥GND (PTT ground)
③FREQ UP/DOWN
⑤PTT
④T.SQL BUSY OUT
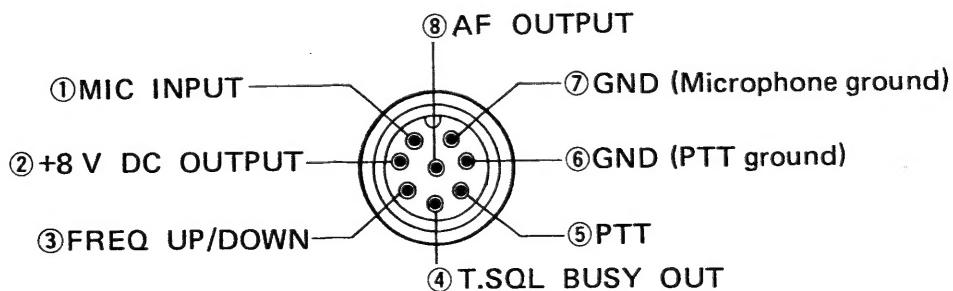
3 INSTALLATION

(1) LOCATION

Select a location for the transceiver that does not interfere with driving in any way. We recommend the locations shown in the diagram below.
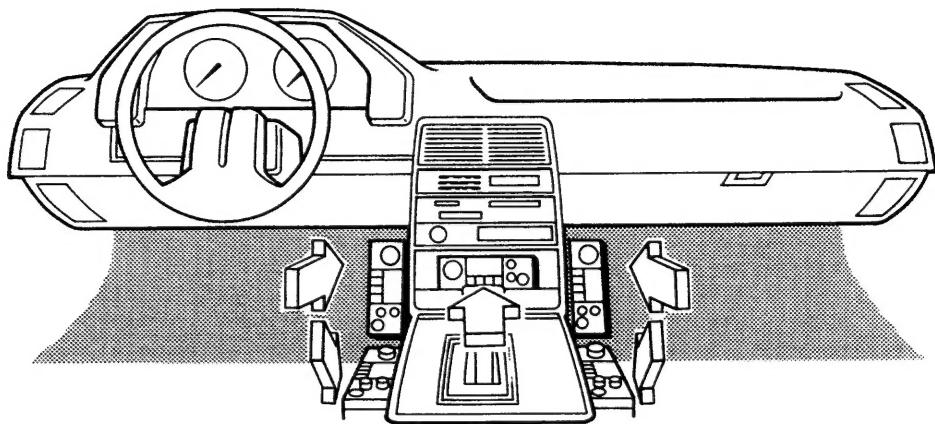
LOCATION NOTES: **NEVER** place the transceiver in direct sunlight.
**NEVER** place the transceiver where normal operation of the vehicle may be hindered or where it could cause bodily injury.
DO NOT place the transceiver where hot or cold air blows directly on it.

(2) MOUNTING

After mounting the transceiver, be sure all screws have been tightened.

●MOUNTING THE TRANSCEIVER
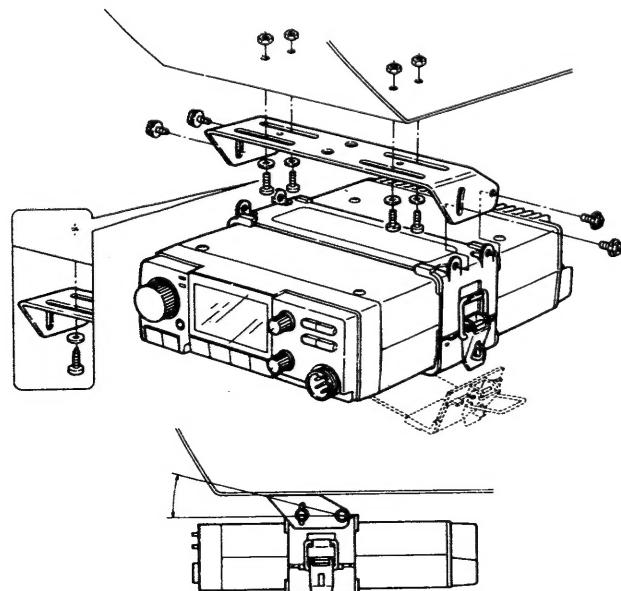
1) Drill four holes where the mounting bracket is to be installed.
   ● Hole sizes:
   approx. 5.5 ~ 6 mm when using nuts.
   approx. 2 ~ 3 mm when using self-tapping screws.

2) Insert the supplied screws, nuts and washers through the mounting bracket and tighten.

3) If the mounting location is not flat, use the supplied mounting bracket.

4) Adjust the angle for the clearest view of the function display.

(3) BATTERY CONNECTION

IC-3210A/E
rear panel

Crimp

Solder

Supplied DC
power cable

red ⊕

black ⊖

red ⊕   black ⊖

Fuses (15A)

12V
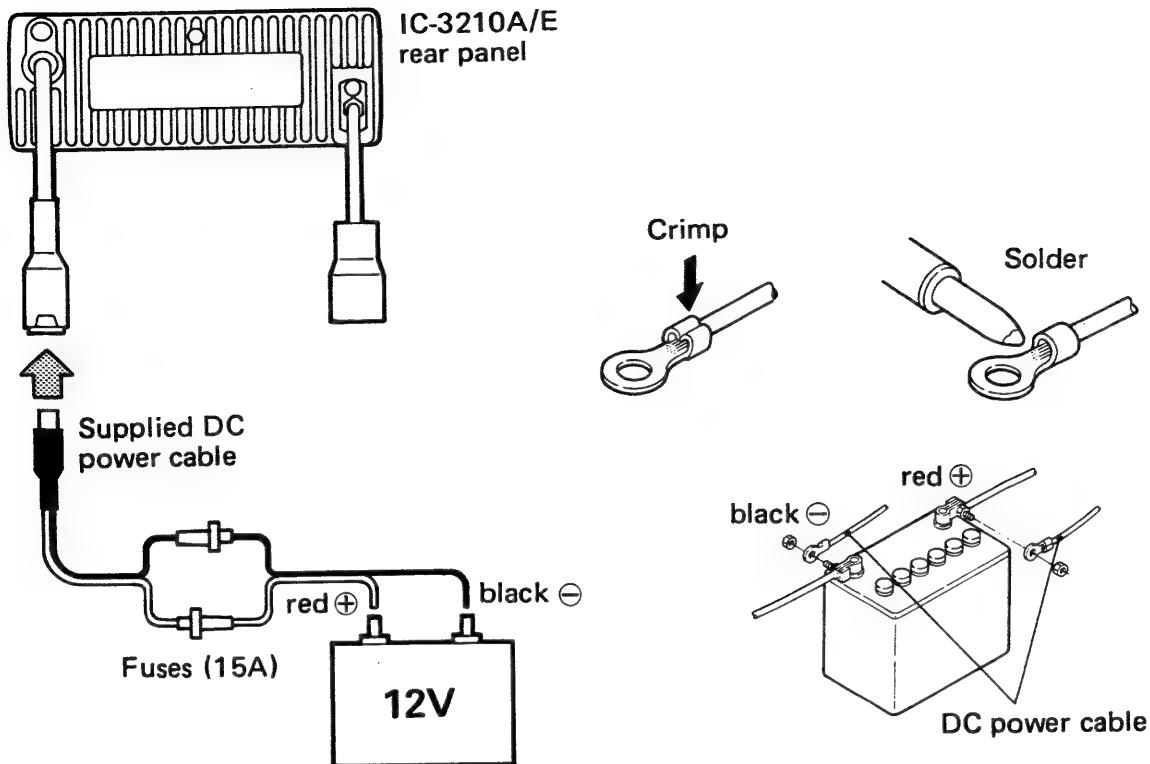
DC power cable

**CONNEC-
TION
NOTES:**

**DO NOT connect the transceiver to a 24 V battery.
DO NOT use the cigarette lighter socket for power
connections.
To prevent voltage drops, solder or crimp the cable
lag when connecting the power cable to the battery.**

(4) EXTERNAL POWER SUPPLY

Use a 13.8 V DC power supply with more than 8 A, such as the PS-45 AC POWER SUPPLY.

When using the transceiver as a base station, be sure the power supply is grounded. Use the heaviest gauge wire or strap available and make the connection as short as possible.

3 INSTALLATION

(5) ANTENNA LOCATION

A duplexer is built-in, enabling you to use a dual band antenna.

To obtain maximum performance from the transceiver, select a high-quality antenna and a good location for it.

Roof-mount antenna — (Drill a hole or use a magnetic mount.)

Trunk-mount antenna

Gutter-mount antenna →

Bumper-mount antenna — (Best location for long whip antennas.)
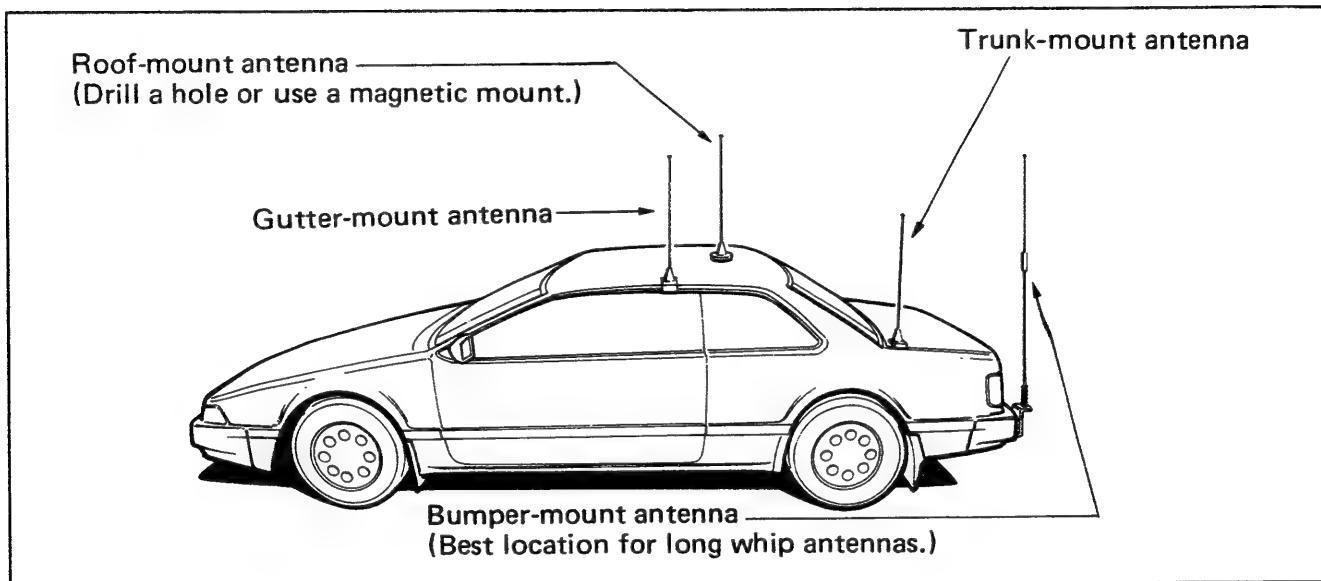
(6) ANTENNA CONNECTOR

Use a PL-259 antenna connector.

┌ 30mm ┐

Coupling ring   10mm (Soft solder)

10mm Soft solder

1~2mm

Solder Solder

(1 inch = 25.4mm)
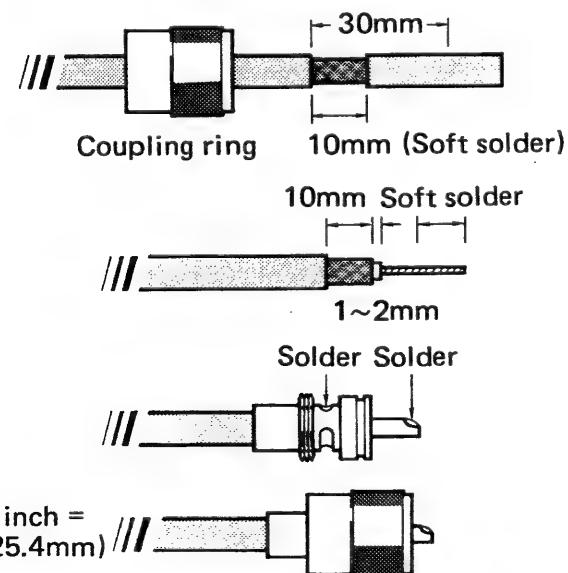
1) Slide the coupling ring over the coaxial cable. Strip only the cable jacket and soft solder.

● Keep the jacket for soft soldering.

2) Strip the cable as shown at left. Tin the center conductor and the entire length of the exposed braid.

3) Slide the connector body over the cable and solder as shown at left.

4) Screw the coupling ring onto the connector body.

(7) DUPLEXER

You can use a dual band antenna because a duplexer is installed in the IC-3210A/E. However, an external duplexer must be connected when using separate antennas for each band.

The IC-3210A/E has 4 different modes on each band for versatile, multi-function operations.

● VFO MODE

This mode is used for normal operations on the VHF and UHF bands.

● MEMORY MODE

This mode is used for operating the transceiver using memory channel contents. You can use 20 double-spaced memory channels. One space stores an operating frequency. The other space stores information required to work a repeater; when not working a repeater, the other space stores a frequency to be used for full duplex.

● CALL CHANNEL MODE

This mode provides you with two channels separate from the memory channels. Each band has one call channel.

● SET MODE
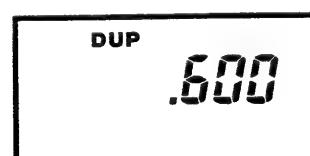
Use the SET mode to program the data as described on p. 10.

To access the SET mode displays, push [SET] on the VFO mode. The display you last used appears.

■ MODE CONSTRUCTION CHART

VFO MODE		MEMORY MODE
VHF BAND	[VFO/M]	Memory channel x 20
↕ [BAND]		Operating frequency ¦ Offset or ¦ full duplex
UHF BAND		

[SET]

[CALL]

SET MODE		CALL CHANNEL MODE
VHF BAND	[CALL]	VHF BAND
UHF BAND		UHF BAND
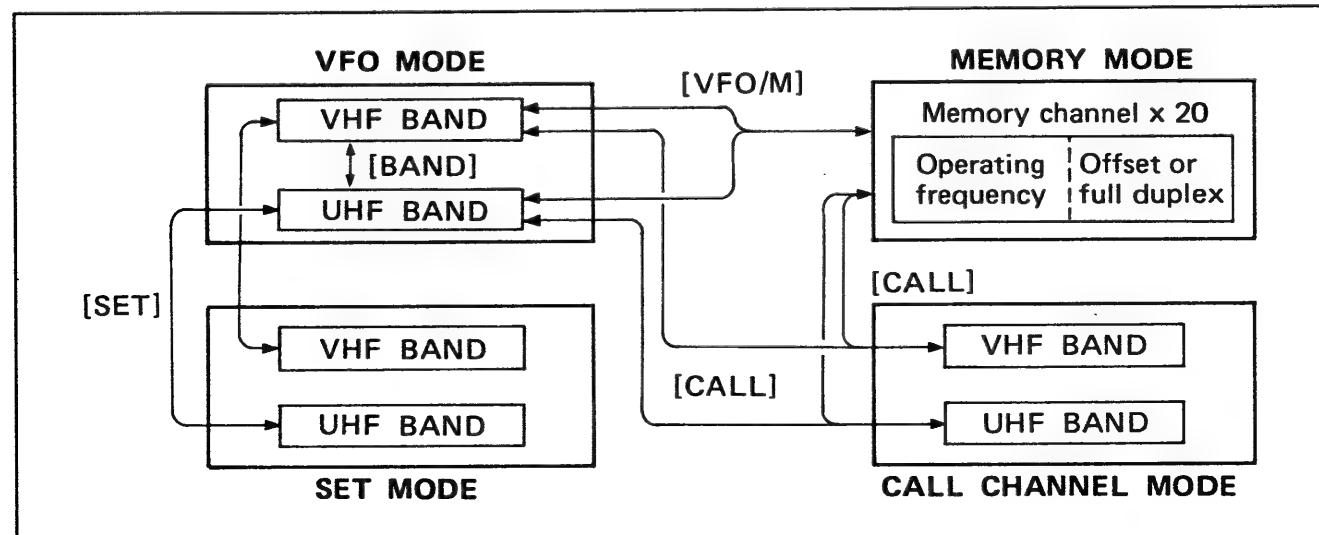
4 MODE CONSTRUCTION

■ SET MODE CONSTRUCTION CHART

145.000 0
VHF band VFO mode

⟷ **BAND**

440.000 0
UHF band VFO mode

SET ⬇ ⬆ **VFO/M**

SET ⬇ ⬆ **VFO/M**

VHF band SET mode

TONE 88.5
Subaudible tone frequency

↓

DUP .600
Offset frequency

↓

TS .25
Tuning step

↓

144.000 A
Programmed scan edge A

↓

146.000 b
Programmed scan edge B

The display returns to the VHF band VFO.

SET

↑

d-4
Dimmer control

↑

b-on
Beep ON/OFF

The display returns to the UHF band VFO.

SET

UHF band SET mode

TONE 88.5
Subaudible tone frequency

↓

DUP 5.000
Offset frequency

↓

TS .25
Tuning step

↓

440.000 A
Programmed scan edge A

↓

450.000 b
Programmed scan edge B

5-1 FREQUENCY SETTING

Frequencies can be set with the tuning control or the microphone [UP] [DN] switches.

1) Push [ON/VOL] to turn ON the power.

2) If "M" or "C" appears on the function display push [VFO/M] to select the VFO mode.

3) Push [BAND] to select VHF or UHF.

4) Rotate the tuning control or push the [UP] or [DN] switch on the microphone to change the frequency.

- IC-3210A : 5, 10, 15, 20 or 25 kHz
  IC-3210E : 12.5 or 25 kHz

- Select a tuning step in the SET mode as described below.

- VHF and UHF tuning steps are programmed independently.

- To exchange IC-3210A tuning steps for IC-3210E tuning steps or vice-versa, reset the CPU (p. 32).

5) Push [TS] for a 1 MHz tuning step.

- "TS" appears when the 1 MHz step is selected.

- The tuning control changes the frequency in 1 MHz steps. [UP] and [DN] on the microphone do not.

4) Set freq.

1) Power ON.

2) Select VFO.

5) Push for 1 MHz.

3) Select band.

4) Set freq.

USING SET MODE

■ TUNING STEP SELECTION
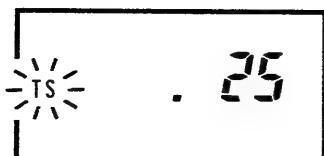
The display shows the 25 kHz tuning step.

1) Push [VFO/M] to access the VFO mode.

2) Push [BAND] to select VHF or UHF.

3) Push [SET] until "TS" flashes on the function display as shown at left.

4) Rotate the tuning control for the desired tuning step.

5) Push [VFO/M] to return to the VFO mode.

5 BASIC OPERATION

5-2 RECEIVING

```
┌─────────────┐        ┌──────────────────┐
│ 5) Set freq.│        │ 1) Power ON.     │
└─────────────┘        │ 2) Adjust audio. │
                       └──────────────────┘
```

```
┌──────────────┐   ┌──────────────────┐
│ 4) Select band.│ │ 3) Adjust SQL.   │
└──────────────┘   │ 6) Push for monitor.│
                   └──────────────────┘
```
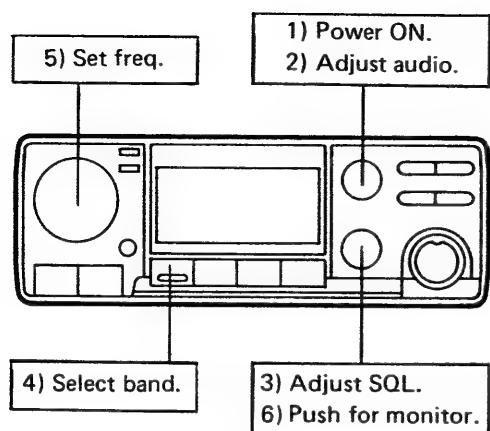
1) Push [ON/VOL] to turn ON the power and rotate [SQL/MONITOR] maximum counter-clockwise.

2) Rotate [ON/VOL] to the desired audio level.

3) Rotate [SQL/MONITOR] to the squelch threshold point.

4) Push [BAND] to select the desired band (VHF or UHF).

5) Set the desired frequency with the tuning control or the microphone [UP] [DN] switches.

   ● When a signal is received, audio is emitted from the speaker and the S/RF indicator displays the relative signal strength.

6) Push [SQL/MONITOR] to operate the monitor function, if desired.

5-3 TRANSMITTING

CAUTION: Transmitting without an antenna may damage the transceiver.

NOTE: To prevent interference, listen on the frequency before transmitting.

1) Select simplex.
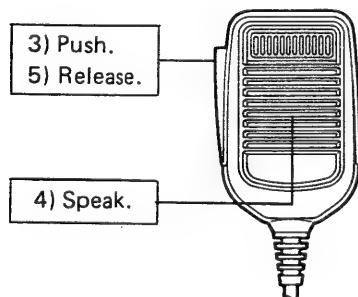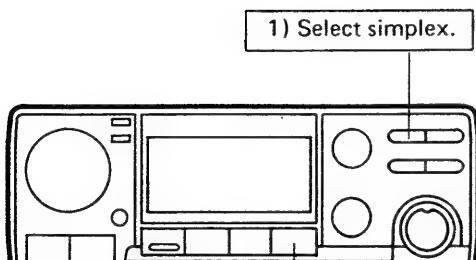
2) Select power.

1) If "SPT," "DUP–" or "DUP" appears on the function display, push [DUP] until it disappears.

2) Push [HI/LO] to select the output power.
   - HIGH : 25 W
     LOW : 5 W ("LOW" appears on the function display.)

3) Push and hold the [PTT] switch on the microphone to transmit.
   - The [TX] indicator lights and the S/RF indicator shows relative output power selection.

3) Push.
5) Release.

4) Speak.

4) Speak into the microphone using your normal voice level.
   - Do not hold the microphone too closely to your mouth or speak too loudly. This may distort the signal.

5) Release [PTT] to receive.

5 BASIC OPERATION

5-4 REPEATER OPERATION

When working a repeater, set the transceiver to duplex. To access the repeater with a tone, see below.
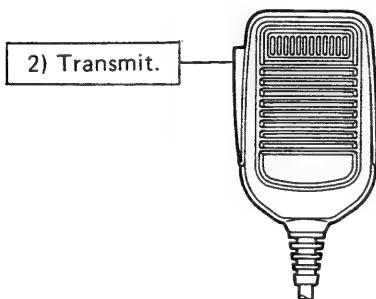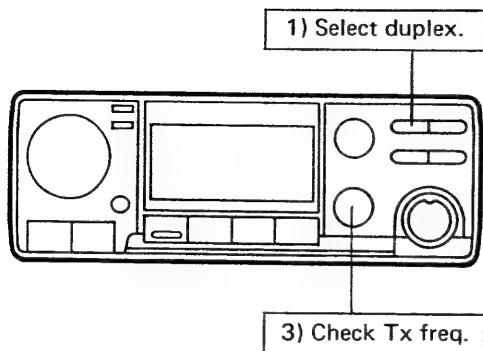
1) Push [DUP] once for —duplex and again for +duplex.

- "DUP—" or "DUP" appears on the function display.
  "DUP—" : Transmit freq. =
  Receive freq. — Offset freq.
  "DUP" : Transmit freq. =
  Receive freq. + Offset freq.

- The VHF and UHF offset frequencies are independently programmed.

2) Push [PTT] to transmit on the repeater input frequency.

- When a tone is required to access the repeater, see below.

3) To check the transmit frequency (repeater input frequency) while receiving, push [SQL/MONITOR].

- The squelch or the tone squelch opens.

1) Select duplex.

3) Check Tx freq.

2) Transmit.

- **CTCSS SUBAUDIBLE TONE**
  Push [T/T.SQL] to turn the subaudible tone encoder ON and OFF.

  T/T.SQL
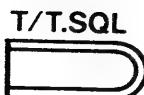
  "TONE" appears on the function display.

- **1750 Hz TONE (Europe version)**
  Push and hold the [TONE] switch on the microphone for about 1 ~ 3 seconds to transmit a 1750 Hz tone.
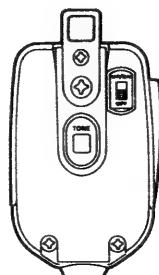
- **DTMF TONE (U.S.A. version)**
  While pushing the [PTT] switch, push the required keys on the microphone.
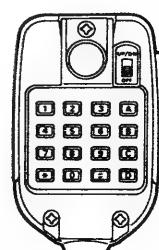
■ SUBAUDIBLE TONE SETTING

```
  ≈TONE≈
  88.5
```

The display shows that the subaudible tone frequency is 88.5 Hz.

Select one of 38 CTCSS tone frequencies for some repeater operation. When UT-40 is installed, select one of 37 encoder/decoder frequencies.

1) Push [VFO/M] to access the VFO mode.

2) Push [BAND] to select the VHF or UHF.

3) Push [SET] until "TONE" flashes on the function display as shown at left.

4) Rotate the tuning control to select the desired tone frequency.

5) Push [VFO/M] to return to the VFO mode.

■ OFFSET FREQUENCY SETTING

```
  ≈DUP≈
  .600
```
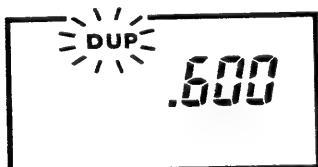
The display shows that the offset frequency is 600 kHz (0.6 MHz).

When duplex operation has been selected, the transceiver transmits on a frequency equal to the receive frequency plus or minus the offset frequency.

1) Push [VFO/M] to access the VFO mode.

2) Push [BAND] to select VHF or UHF.

3) Push [SET] until "DUP" flashes on the function display as shown at left.

4) Rotate the tuning control to select the desired offset frequency.

5) Push [VFO/M] to return to the VFO mode.

6 RELATED FUNCTIONS

6-1 FULL DUPLEX

Full duplex operation refers to simultaneous receiving and transmitting.

Simultaneous speaking and listening

1) Push [VFO/M] to access the VFO mode.

2) Set Tx freq.
3) Set Rx freq.
4) Select SPT.

1) Select VFO.
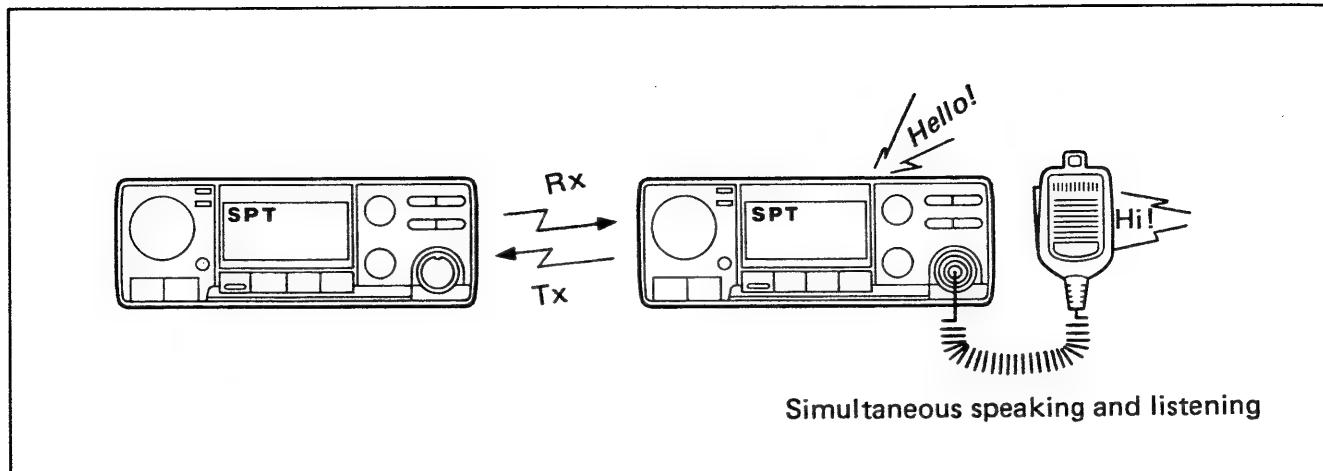
2) Set the desired transmit band and frequency.
   - See p. 11 for details.

3) Push [BAND] and set the receive frequency.

4) Push [DUP] until "SPT" appears on the function display.

5) Push [PTT] to transmit.
   - The transmit frequency is displayed.
   - When transmitting, a signal on the receive frequency is heard over the speaker.

5) Transmit.

6) Both frequencies can be written into one memory channel. Full duplex can be used on a memory channel (p. 19).
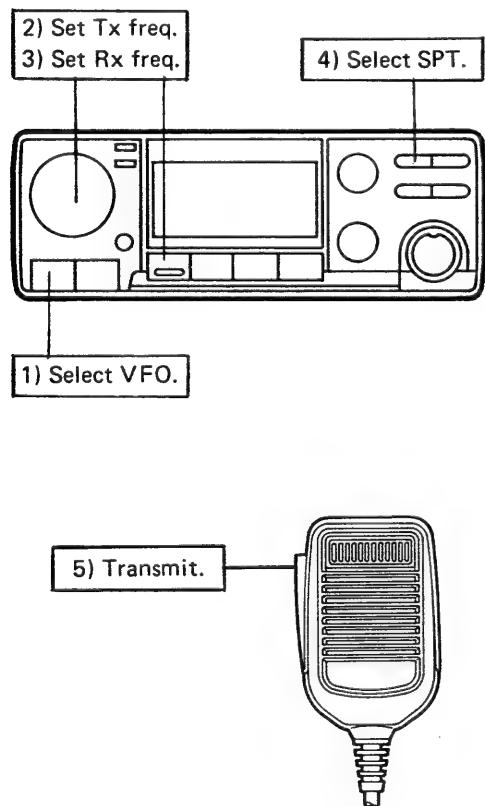
> **NOTE:** **AVOID** setting the UHF frequency near the third multiple of the VHF frequency during full duplex operation. Otherwise the receiver will receive only its own signal.

6-2 CALL CHANNEL MODE

The call channel can be used to store your group frequency or most often used frequency.

```
┌─────────────────────────────────────────────────────────────────┐
│   ┌─────────────────────────┐        ○          ┌──────────────────────────┐  │
│   │      VFO MODE           │       CALL        │   CALL CHANNEL MODE      │  │
│   │  ┌───────────────────┐  │◄──────────────    │  ┌────────────────────┐  │  │
│   │  │    VHF BAND       │  │                   │  │     VHF BAND       │  │  │
│   │  └───────────────────┘  │         ──────►   │  └────────────────────┘  │  │
│   │         ↕               │◄──────            │  ┌────────────────────┐  │  │
│   │  ┌───────────────────┐  │         ──────►   │  │     UHF BAND       │  │  │
│   │  │    UHF BAND       │  │                   │  └────────────────────┘  │  │
│   │  └───────────────────┘  │                   └──────────────────────────┘  │
│   └─────────────────────────┘                                                 │
│   ┌─────────────────────────┐◄──────                                          │
│   │      MEMORY MODE        │                                                 │
│   └─────────────────────────┘                                                 │
└─────────────────────────────────────────────────────────────────┘
```
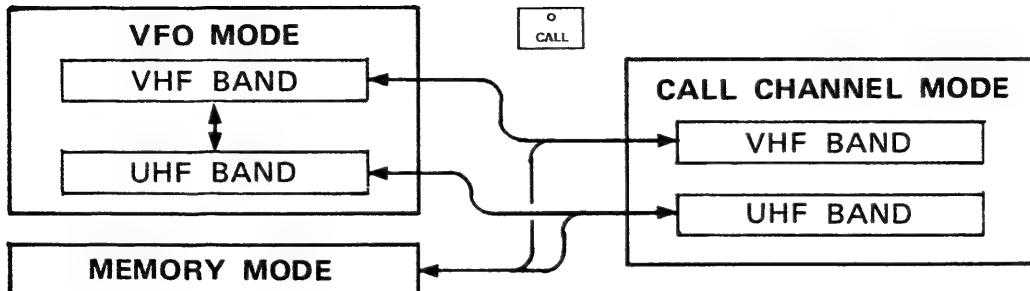
(1) CALL CHANNEL READING

VFO or MEMORY

145.500
M *0*

⇕ [○ CALL]

145.000
C

CALL CHANNEL

1) Choose VHF or UHF with [BAND].

2) Push [CALL] to access the call channel.

- "C" appears on the function display.

- The tuning control is deactivated.
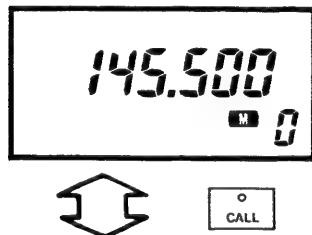
- Push [CALL] or [VFO/M] to leave the call channel.

(2) CALL CHANNEL PROGRAMMING

In CALL CHANNEL mode

145.000
C

MW

Push and hold

1) Push [VFO/M] to access the VFO mode.

2) Choose VHF or UHF with [BAND].

3) Select the contents to be programmed (operating frequency, repeater information, etc.). See pgs. 11, 15.

- The full duplex function can not be programmed into a call channel.

4) Push [CALL] to access the call channel.

5) Push and hold [MW] until three beeps are emitted from the speaker.

6 RELATED FUNCTIONS

6-3 MEMORY MODE

The IC-3210A/E has 20 double-spaced memory channels.

(1) MEMORY READING

VFO MODE
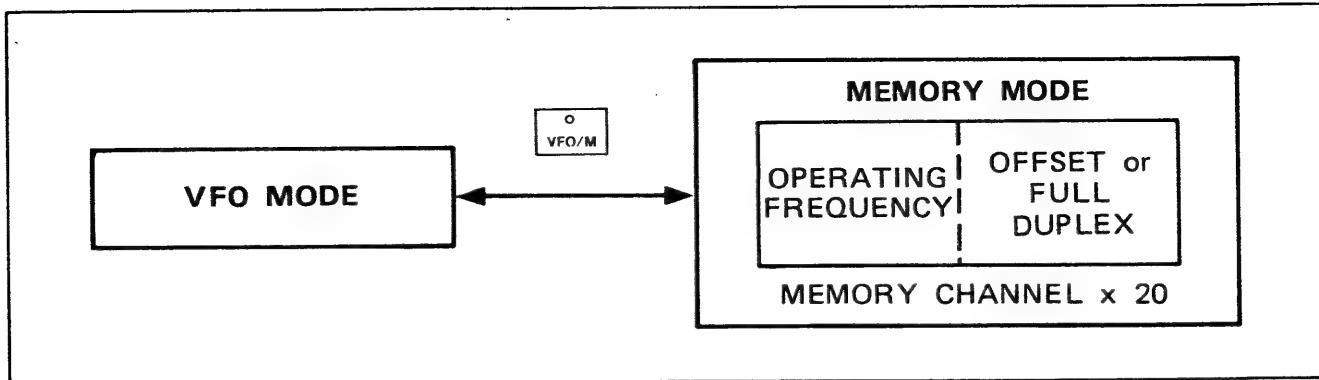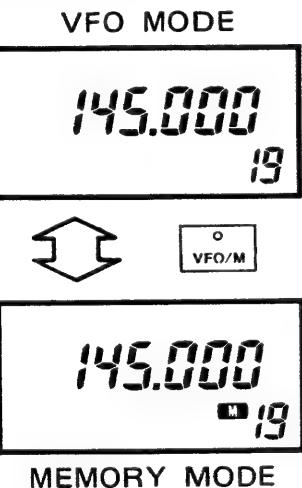
MEMORY MODE

1) Push [VFO/M] to select the memory mode.

   ● "M" appears on the function display.

2) Rotate the tuning control or push the [UP] or [DN] switch on the microphone to select a memory channel.

   ● When full duplex is programmed in a memory channel, push [BAND] for the other operating frequency.

3) Push [VFO/M] to return to the VFO mode.

(2) MEMORY WRITING

In VFO mode

Push and hold
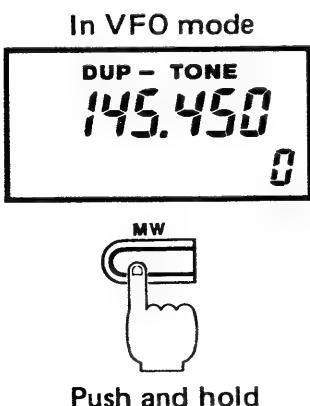
1) Select the memory channel to be programmed (see above).

2) Push [VFO/M] to select the VFO mode.

   ● "M" disappears from the function display.

3) Select the operating frequency. If desired, repeater or full duplex information contents can be programmed (pgs. 11, 15, 16).

4) Push and hold [MW] until three beeps are emitted from the speaker.

5) The transceiver has written the frequency into the memory channel. To check the contents, push [VFO/M].

(3) DUAL BAND MEMORY

```
SPT
  145.000
        ■ 19
```

⇕   BAND

```
SPT
  440.000
        ■ 19
```
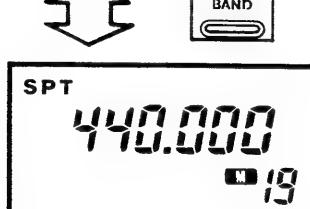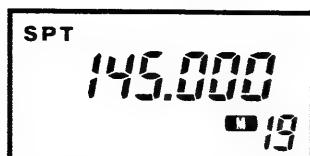
Each of the 20 memory channels is double-spaced. When a frequency is programmed into each space, you can operate on 40 channels.

1) Program the full duplex function into a memory channel and access that channel. (p. 18)

2) Push [BAND] to select the frequency on the other band.

3) To operate simplex on that frequency, push [DUP] as required.

 • The full duplex memory is not erased.

(4) MEMORY TRANSFERRING

In MEMORY mode

```
  145.500
        ■ 0
```

MW

Copy and transfer the displayed memory contents into the VFO mode. This function is useful for searching for signals around the memory channel frequency.

The contents of the memory channel are not erased.

1) Select the memory channel to be transferred. (p. 18)

2) Push and hold [MW] until three beeps are emitted from the speaker.

 • The contents of the memory channel have been transferred into the VFO mode.

6 RELATED FUNCTIONS

6-4 SCAN FUNCTION

There are three scan functions: programmed scan, memory scan and selected memory band scan. The memory channel skip function can be used with any memory scan.

(1) PROGRAMMED SCAN

The programmed scan function scans between two frequencies.
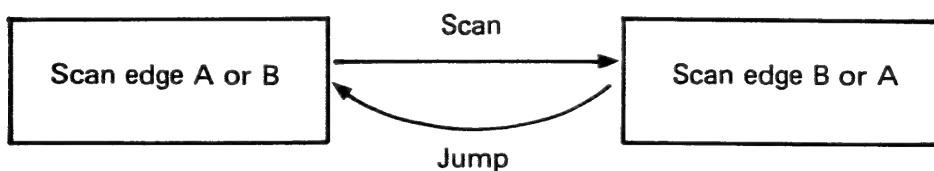
■ **PRE-OPERATION**

1) Access the VFO mode with [VFO/M].
2) Set the scan edge frequencies as described on p. 21.
3) Rotate [SQL/MONITOR] to the squelch threshold point.
   - The [RX] indicator goes out.

■ **OPERATION**

Push and hold while in VFO mode.
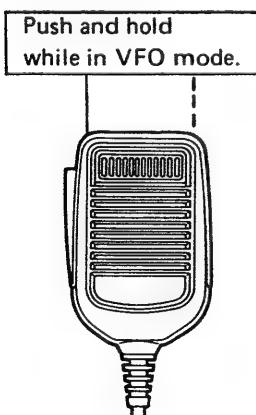
1) Push and hold [UP] or [DN] on the microphone for about 0.5 seconds to start a programmed scan.

   - [UP] : upward scan
     [DN] : downward scan

2) When receiving a signal, scanning stops.

   - After 15 seconds, scanning resumes.

   - 2 seconds after the signal disappears, scanning starts again.

3) To cancel the scan, push [UP] or [DN] on the microphone.

   - The tuning control and some other switches also cancel the scan.

USING SET MODE

■ SCAN EDGE SETTING

144.000
A

146.000
b

1) Push [VFO/M] to access the VFO mode.

2) Push [BAND] to select VHF or UHF.

3) Push [SET] until "A" flashes on the function display as shown at left.

4) Rotate the tuning control for the desired "A" scan edge frequency.
   ● Use the [TS] switch together with the tuning control to advance the frequency in 1 MHz steps.

5) Push [SET] once. "b" flashes on the function display.

6) Rotate the tuning control for the desired "b" scan edge frequency.

7) Push [VFO/M] to return to the VFO mode.

(2) MEMORY SCAN

The memory scan function scans all memory channels in succession. To skip certain channels, use the memory channel skip function (p. 24).
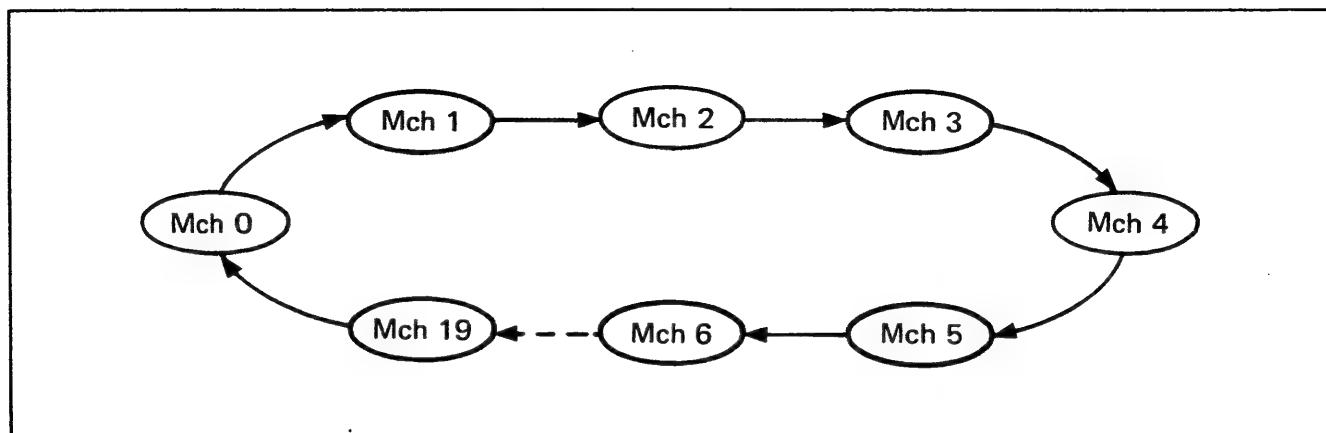
■ **PRE-OPERATION**

1) Access the memory mode with [VFO/M].
2) Rotate [SQL/MONITOR] to the squelch threshold point.
 • The [RX] indicator goes out.

■ **OPERATION**

Push and hold while in memory mode.
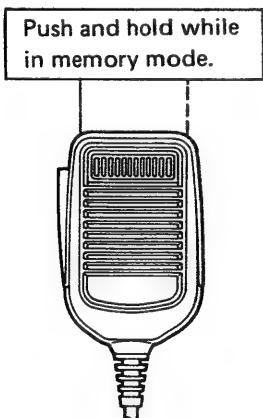
1) Push and hold [UP] or [DN] on the microphone for about 0.5 seconds to start a memory scan.

 • [UP] : upward scan
 [DN] : downward scan

2) When receiving a signal, scanning stops.

 • After 15 seconds, scanning resumes.

 • 2 seconds after signal disappears, scanning starts again.

3) To cancel the scan, push [UP] or [DN] on the microphone.

 • The tuning control, and some other switches also cancel the scan.

(3) SELECTED BAND MEMORY SCAN

The selected band memory scan function scans all memory channels on one band in succession. To skip certain channels, use the memory channel skip function (p. 24).
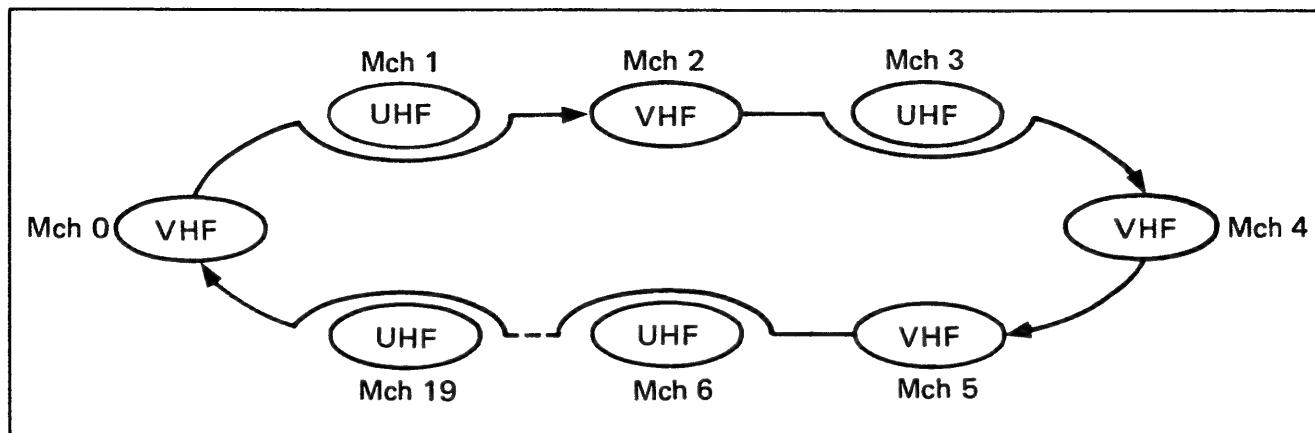
■ **PRE-OPERATION**

1) Access the memory mode with [VFO/M].
2) Rotate [SQL/MONITOR] to the squelch threshold point.
   • The [RX] indicator goes out.

■ **OPERATION**

Push and hold while in memory mode.
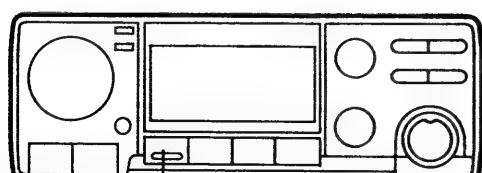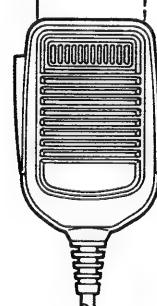
Start selected band memory scan.

1) Push and hold [UP] or [DN] on the microphone for about 0.5 seconds to start the scan.

   • [UP] : upward scan
     [DN] : downward scan

2) Push [BAND] to start the selected band memory scan.

   • To change the VHF or UHF band, push [BAND] again.

3) When receiving a signal, scanning stops.

   • After 15 seconds, scanning resumes.

   • 2 seconds after signal disappears, scanning starts again.

4) To cancel the scan, push [UP] or [DN] on the microphone.

   • The tuning control, [VFO/M] and [CALL] also cancel the scan.

(4) MEMORY CHANNEL SKIP

Program the memory channel skip function to skip a channel during a memory or selected band memory scan.

The memory skip function can also be used for priority watch. See p. 26, VFO ⟷ MEMORY CHANNELS.

2) Select a channel.

1) Access memory. 3) Push to program.

145.800

Programmed as a skip channel.
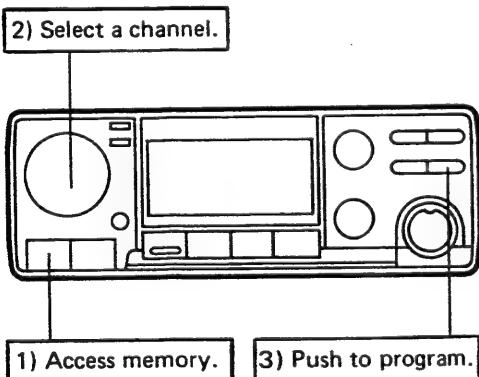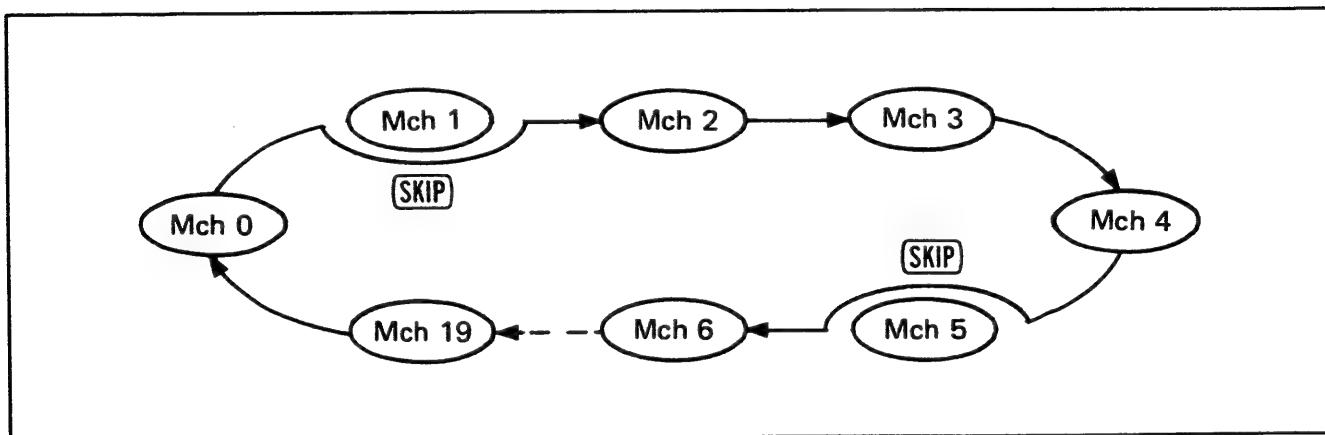
1) Access the memory mode with [VFO/M].
- "M" appears on the function display.

2) Select the memory channel to be skipped with the tuning control.

3) Push [SET] to program the selected memory channel to be skipped.
- "SKIP" appears on the function display.

4) Push [SET] again to cancel the memory channel skip function for that channel.
- "SKIP" disappears from the function display.

6-5 PRIORITY WATCH

Every five seconds, priority watch monitors a watching frequency while you work on the VFO frequency.

(1) VFO ⟷ VFO, MEMORY or CALL CHANNEL

Operating frequency
VFO

Watching frequency
MEMORY or CALL

- Transmitting accepted while watch continues.
- [PRIO] cancels watch.

While receiving on watching frequency:
- Transmitting not accepted.
- [PRIO] returns to operating frequency.
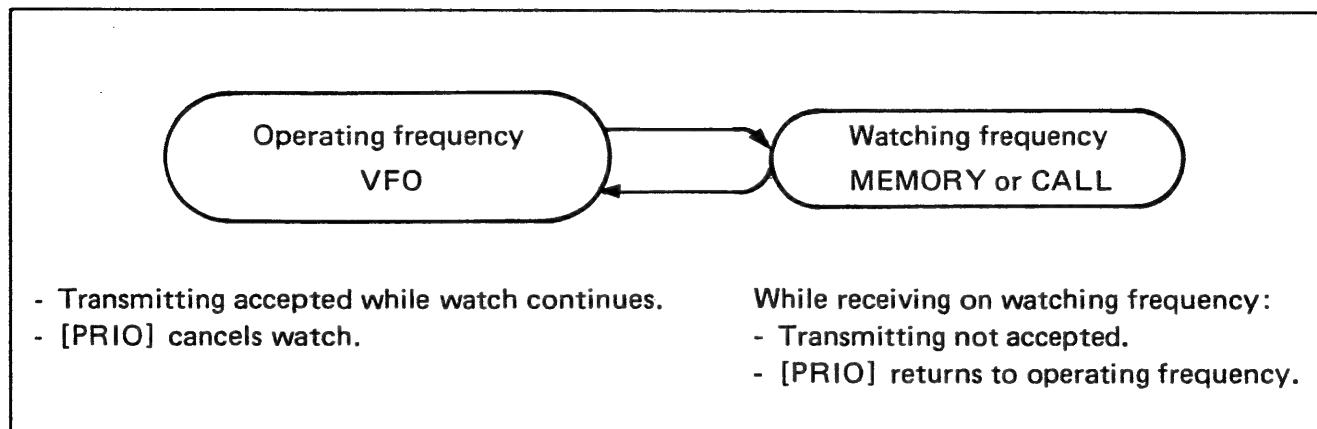
■ PRE-OPERATION

● **VFO frequency watch**
1) Set the VFO frequency to be watched.
2) Push [BAND] and set the VFO operating frequency on the other band.

● **Call channel watch**
1) Set the VFO operating frequency.
2) Push [CALL] to access the call channel.

● **Memory channel watch**
1) Set the VFO operating frequency.
2) Select the memory channel to be watched (p. 18).

■ OPERATION
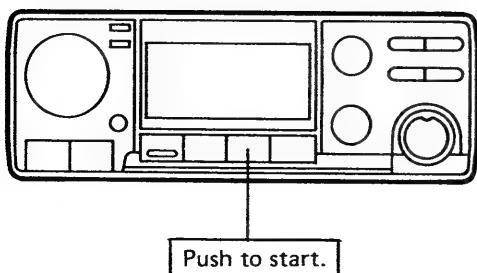
Push to start.

1) Push [PRIO] to start priority watch.

● "PRIO" appears on the function display.

2) When a signal is received on the watching frequency (memory, call or another band VFO), priority watch stops for 15 seconds.

● After 15 seconds, priority watch resumes.

3) To cancel priority watch, push [PRIO] when the operating frequency is displayed.

(2) VFO ⟷ MEMORY CHANNELS

Priority watch can also watch each memory channel in approx. 5 sec. consecutive intervals.
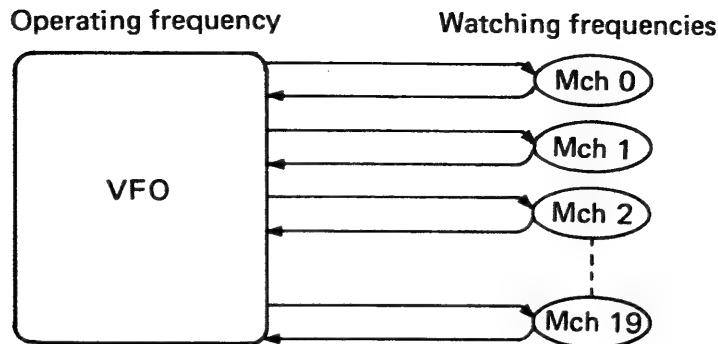
Operating frequency   Watching frequencies

VFO

Mch 0
Mch 1
Mch 2
Mch 19

- Transmitting accepted while watch continues.
- [PRIO] cancels watch.

While receiving on watching frequency:
- Transmitting not accepted.
- [PRIO] returns to operating frequency.

■ PRE-OPERATION

1) Set the VFO operating frequency.
2) Push [VFO/M] to access the memory mode.
3) To skip a channel when scanning, push [SET].

■ OPERATION
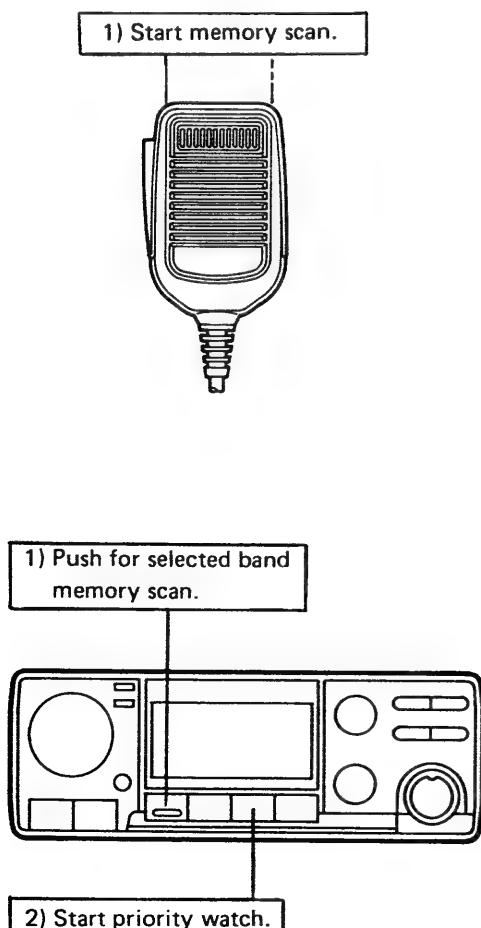
1) Start memory scan.

1) Start the memory scan or the selected band memory scan.

● **Memory scan**
Push and hold [UP] or [DN] on the microphone.

● **Selected band memory scan**
Start a memory scan, and push [BAND] as required.

1) Push for selected band memory scan.

2) Start priority watch.

2) Push [PRIO] to start priority watch.

● "PRIO" appears on the function display.

● The memory channel changes every five seconds.

3) When a signal is received on the watching frequency (memory channel), priority watch stops for 15 seconds.

● After 15 seconds, priority watch resumes.

4) To cancel priority watch, push [PRIO] when the operating frequency is displayed.

6-6 DIMMER CONTROL

$d - 4$
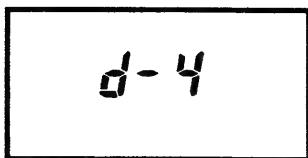
The display for the brightest intensity.

The intensity of the function display backlight is adjustable using the SET mode.

1) Push [VFO/M] to access the VFO mode.

2) Push [SET] until "d-1," "d-2," "d-3" or "d-4" appears on the function display.

3) Rotate the tuning control for the desired lighting intensity.

4) Push [VFO/M] to return to the VFO mode.

6-7 BEEP ON/OFF FUNCTION

$b - on$
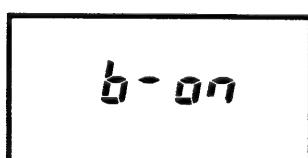
The display shows that the beep is ON.

The speaker emits a beep each time a switch is pushed. To turn OFF the beeps, use the SET mode.

1) Push [VFO/M] to access the VFO mode.

2) Push [SET] until "b-on" or "b-oFF" appears on the function display.

3) Rotate the tuning control to select "b-oFF."

   • To turn ON the beeps again, rotate the tuning control to select "b-on."

4) Push [VFO/M] or [SET] to leave the SET mode.

6-8 LOCK FUNCTION
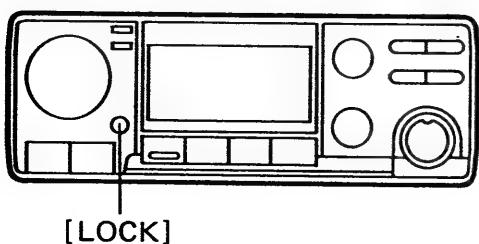
[LOCK]

1) To lock switches and controls, push [LOCK].

   • "L" appears on the function display.

   • [SQL/MONITOR], [ON/VOL] and [PTT] remain unlocked.

2) To unlock the switches and controls, push [LOCK] again.

7 POCKET BEEP AND TONE SQUELCH

7-1 UT-40 INSTALLATION

Install the UT-40 TONE SQUELCH UNIT (sold separately) for "pocket beep" and tone squelch functions.

> **CAUTION:** Turn OFF the power and disconnect the power cord before removing the cover from the transceiver.

1) Remove four screws from the top cover and remove the cover.

2) Connect the UT-40 to the 10-pin plug as shown in the diagram below.

3) Remove the white sheet from the back of the UT-40. Attach the black adhesive to the IC (S7116A) as shown diagram below.

4) Replace the top cover and the four screws.

• **Opening the top cover**   • **Installing the UT-40**
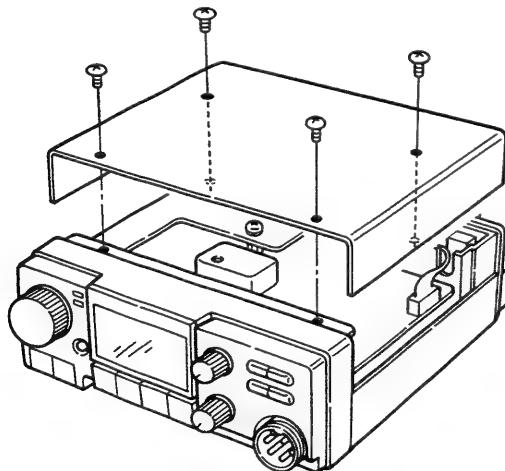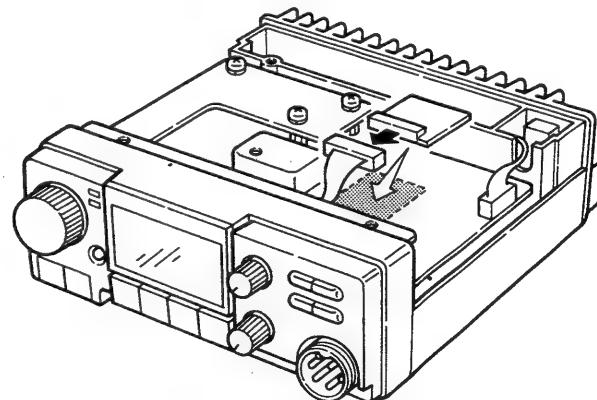
7-2 POCKET BEEP

When "pocket beep" is activated, the transceiver functions as a pager. When a received tone frequency equals the tone you've set, an alarm of 30 seconds is emitted over the speaker.
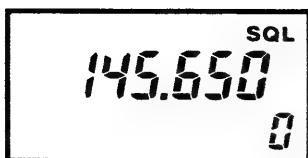
To set a tone frequency, see p. 15. Install the UT-40 (sold separately) for "pocket beep" operation.

1) Push [T/T.SQL] until "SQL" appears on the function display.

2) When a signal with the correct tone is received, an alarm of 30 seconds is emitted over the speaker and "SQL" flashes.

3) Push any switch to stop the alarm.

   ● The tone squelch function is automatically activated.
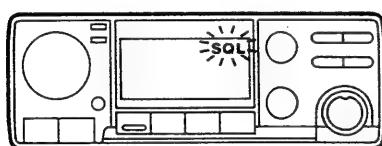
7-3 TONE SQUELCH

When a received tone frequency equals the tone frequency you've set, the squelch opens.

To set a tone frequency, see p. 15. Install the UT-40 (sold separately) for the tone squelch operation.

1) Push [T/T.SQL] until "TONE SQL" appears on the function display.

2) When the correct tone frequency is received, the squelch opens and the signal can be heard.

3) Push [SQL/MONITOR] to open the squelch, if desired.

4) When an incorrect tone frequency is received, the squelch does not open. However, the [RX] indicator lights.
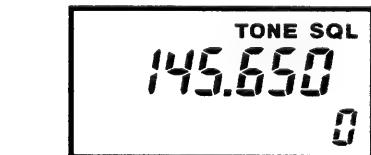
8 MAINTENANCE
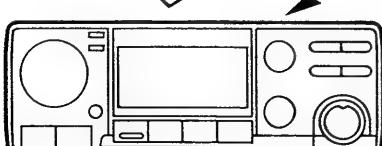
8-1 TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
● No power.	● Power connector has a poor contact.	● Check the connector pins.	
	● Polarity of the power connection is reversed.	● Reconnect the power cable observing the proper polarity.	p. 7
	● Blown fuse.	● Check the cause, then replace the fuse.	p. 31
● No sound comes from the speaker.	● [SQL/MONITOR] is turned too far clockwise.	● Set [SQL/MONITOR] at the threshold point.	p. 12
	● The optional tone squelch is turned ON, if UT-40 is installed.	● Turn OFF the tone squelch function.	p. 29
● Sensitivity is low and only strong signals are audible.	● Antenna feedline or the soldering of antenna connector is cut or short circuited.	● Check, and if necessary, replace the feedline or solder the antenna connector again.	p. 8
● No contact possible with another station.	● The transceiver is set to semi or full duplex.	● Set to simplex.	p. 13
	● The other station is using the tone squelch.	● Turn ON the tone squelch, if UT-40 is installed.	p. 29
● Repeater can not be accessed.	● Wrong offset frequency is programmed.	● Correct the offset frequency.	p. 15
	● Wrong subaudible tone frequency is programmed.	● Correct the subaudible tone frequency. Be sure the offset and the subaudible tone frequencies are independently programmed on each memory channel.	p. 15
● Frequency can not be set.	● The [LOCK] switch is turned ON.	● Turn OFF the [LOCK] switch.	p. 27
	● CALL CHANNEL mode is selected.	● Push [CALL] to leave CALL CHANNEL mode.	p. 17

PROBLEM	POSSIBLE CAUSE	SOLUTION	REF.
● Scan does not operate.	● Squelch is open.	● Set squelch threshold point.	p. 20
	● Scan edge A equals B (for programmed scan).	● Reset scan edges.	p. 21
	● All memory channels are programmed as the skip channel (for memory scan).	● Cancel the memory skip function in the desired channel.	p. 24
● All programmed memories have been erased.	● Data error occurred in the CPU RAM because of the following problems. - The backup battery is empty. - The CPU has been damaged by static.	● Replace the backup battery. Reset the CPU.	p. 32 p. 32
● SET mode can not be accessed.	● Memory mode is selected.	● Select VFO mode then push [SET].	p. 10

8-2 FUSE REPLACEMENT

Locate the cause before replacing a blown fuse.

● DC line fuse :   15A
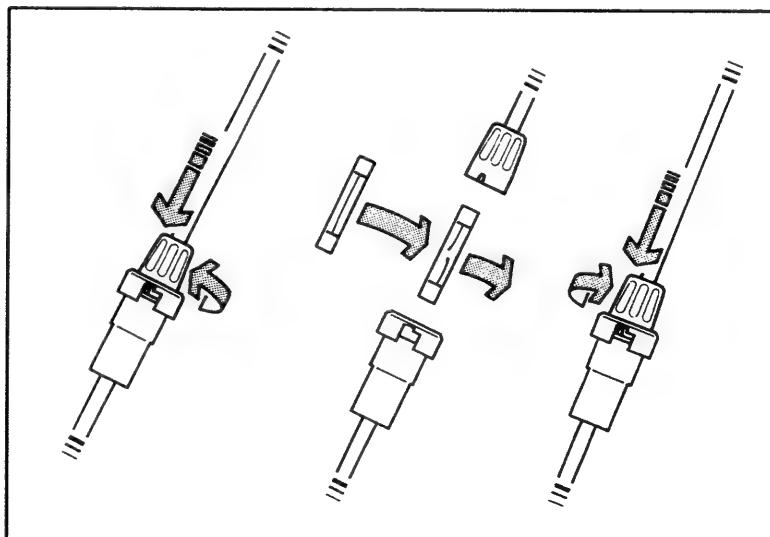
8 MAINTENANCE

8-3 CPU RESETTING

> **NOTE:** Resetting the CPU erases all information written into memory channels.

(1) AUTOMATIC RESET

When the power is ON, the CPU is automatically reset under the following conditions:
— The backup battery is empty.
— Static or magnetic field has caused a data error in the CPU RAM.

(2) MANUAL RESETTING

1) Turn OFF the power.

2) While pushing and holding [SQL/MONITOR] and [LOCK], turn ON the power.

(3) RESETTING THE TUNING STEPS

To exchange 5, 10, 15, 20 or 25kHz tuning steps for 12.5 or 25 kHz steps (and vice-versa), reset the CPU as follows:

1) Turn OFF the power.

2) While pushing and holding [SQL/MONITOR] and one of the following switches, turn ON the power.

● VHF band 5 kHz → 12.5 kHz : [PRIO]
VHF band 12.5 kHz → 5 kHz : [HI/LO]
UHF band 5 kHz → 12.5 kHz : [BAND]
UHF band 12.5 kHz → 5 kHz : [TS]

(4) BACKUP BATTERY

The life of the lithium backup battery is usually more than five years. When the battery is exhausted, the transceiver operates normally but the CPU does not retain the contents of the memory.

> **NOTE:** DO NOT replace the backup battery youself. It can be replaced only by an authorized Icom Delaer or Service Center.

■ TOP VIEW (MAIN AND VHF PA UNITS)

VHF power module

R7 UHF high power set
R10 UHF low power set
R16 VHF high power set
R12 VHF low power set

R109 70% dev. Adj.*²
R56 VHF max dev. adj.*¹

R55 UHF max dev. adj.*¹

R24 Subaudible tone dev. adj.

C102 Reference freq. adj.

*¹ ±4.8 kHz with 20 mV input
(U.S.A.: 65 mV input)
*² ±3.5 kHz with 2 mV input
(U.S.A.: 6.5 mV input)
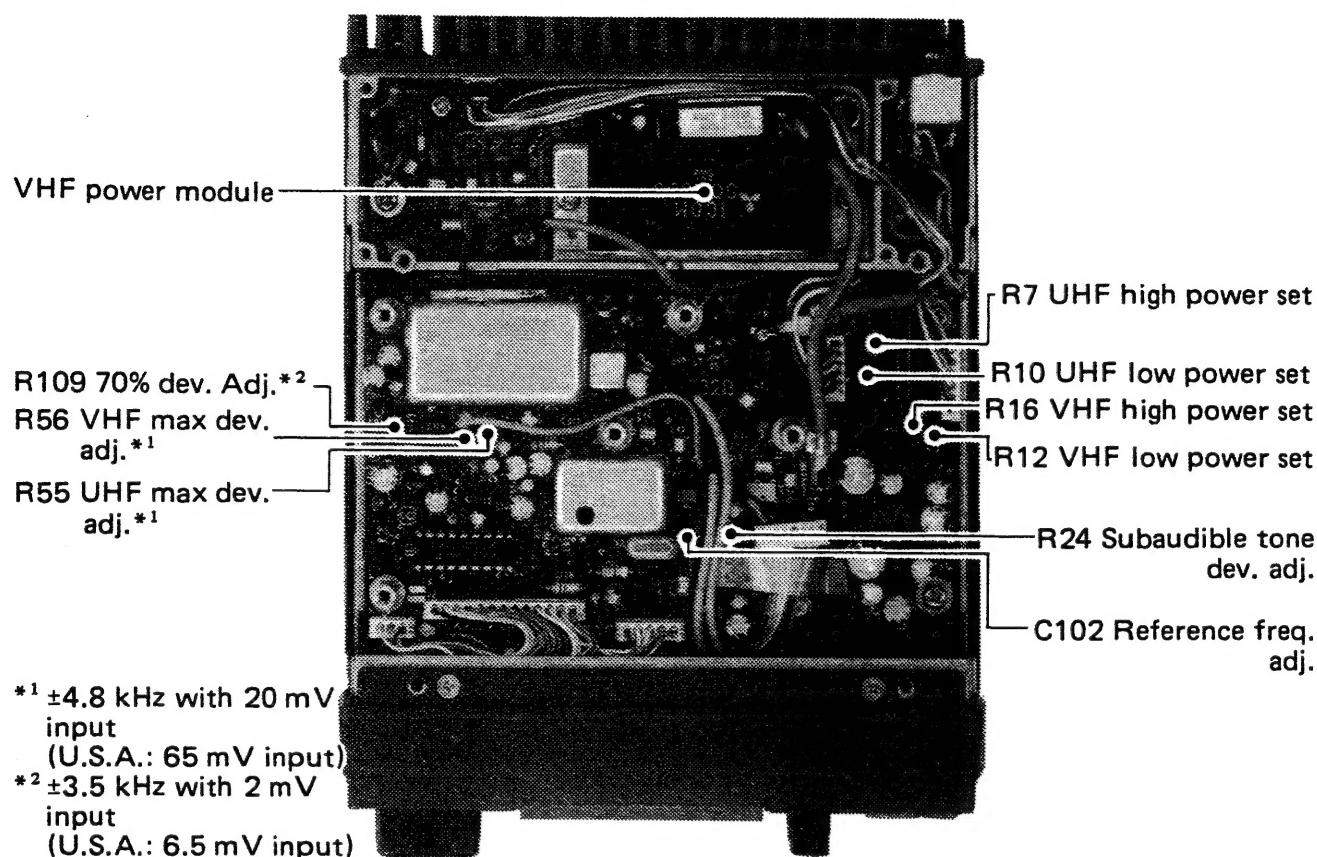
■ BOTTOM VIEW (RX AND UHF PA UNITS)

UHF power module

Q4 VHF RF amp
Q8 UHF RF amp

IC3 AF power amp

R52 UHF S-meter adj.
R53 VHF S-meter adj.

IC5 5 V regulator
IC1 FM IF IC
IC4 8 V regulator
X1 Rx 2nd LO crystal
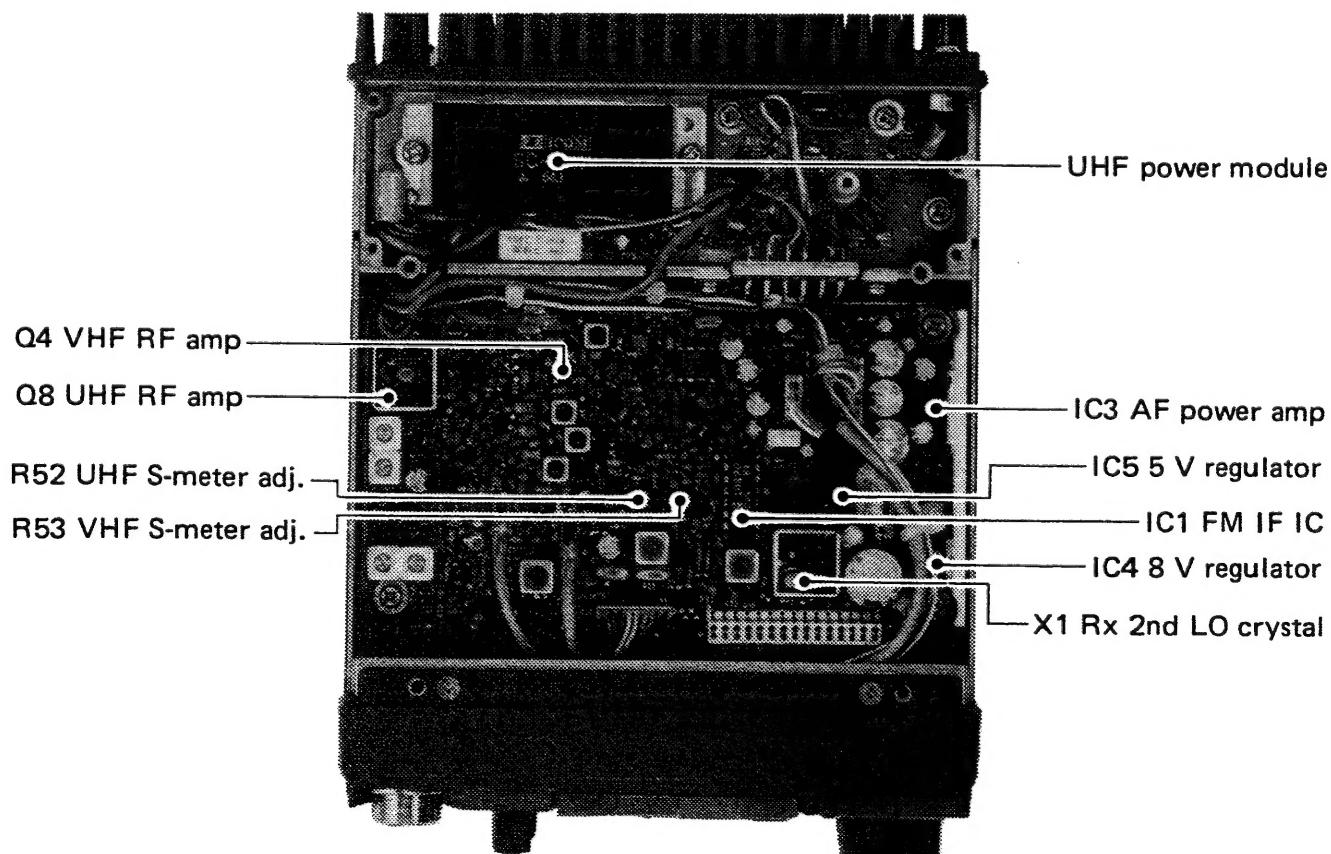
10 SPECIFICATIONS

■ GENERAL

● Frequency coverage :

MODEL	VERSION	VHF	UHF
IC-3210A	U.S.A.	138.00 ~ 174.00 MHz* (Rx) 140.00 ~ 150.00 MHz* (Tx)	440.00 ~ 450.00 MHz
IC-3210A	Australia	144.00 ~ 148.00 MHz	430.00 ~ 440.00 MHz
IC-3210E	Europe	144.00 ~ 146.00 MHz	430.00 ~ 440.00 MHz

* Specifications apply to only 144.00 ~ 148.00 MHz.

● Mode : F3 (FM)
● Selectable tuning step : 5, 10, 15, 20 and 25 kHz   (IC-3210A)
12.5 and 25 kHz   (IC-3210E)
● Memory channels : 20 (double-spaced) memory channels plus two call channels
● Antenna impedance : 50 Ω
● Power supply requirement : 13.8 V DC ± 15 % (negative ground)
● Current drain : Receive   standby   550 mA
max. audio 900 mA (except full duplex operation)
Transmit high   7.6 A
low   3.6 A
● Usable temperature range : −10°C ~ +60°C (+14°F ~ +140°F)
● Frequency stability : ± 10 ppm (−10°C ~ +60°C)
● Dimensions : 140 (W) x 50 (H) x 180 (D) mm
5.5 (W) x 2.0 (H) x 7.1 (D) inches
(Projections not included)
● Weight : 1.2 kg (2.6 lbs.)

■ TRANSMITTER

● Output power : 25 W (high),   5 W (low)
● Modulation system : Variable reactance frequency modulation
● Max. frequency deviation : ± 5 kHz
● Spurious emissions : Less than −60 dB
● Microphone impedance : 600 Ω

■ RECEIVER

● Receiver system : Double-conversion superheterodyne
● Intermediate frequency : 1st   30.875 MHz
2nd   455 kHz
● Sensitivity : 0.18 µV for 12 dB SINAD
● Selectivity : More than 12.5 kHz/−6 dB
Less than 30.0 kHz/−60 dB
● Audio output power : More than 2.4 W at 10 % distortion with an 8 Ω load.
● Audio output impedance : 8 Ω

All stated specifications are subject to change without notice or obligation.

PS-45
AC POWER SUPPLY
13.8 V 8 A
An OPC-102 cable must be purchased separately to connect the IC-3210A/E to the PS-45.
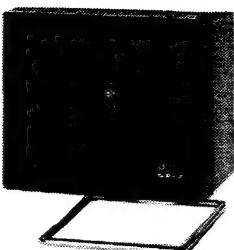
SP-7
EXTERNAL SPEAKER

SP-8
EXTERNAL SPEAKER
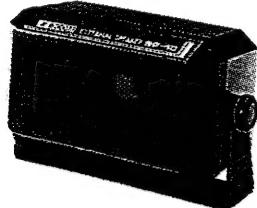
SP-10
EXTERNAL SPEAKER

SM-8
DESK MICROPHONE

SM-10
COMPRESSOR/GRAPHIC EQUALIZER DESK TOP MICROPHONE
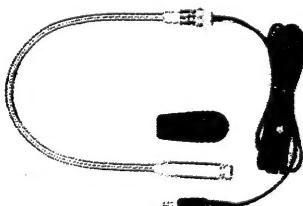
HS-15
FLEXIBLE MOBILE MICROPHONE
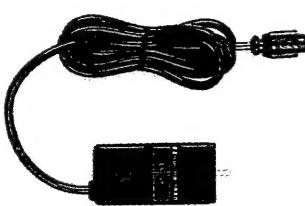
HS-15SB
SWITCHBOX FOR HS-15
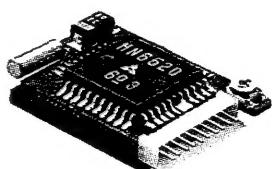
UT-40
TONE SQUELCH UNIT

AH-32	144/430 MHz DUAL BAND MOBILE ANTENNA
AHB-32	TRUNK MOUNT

Count on us!